

In the claims:

Claims 1-14 (Cancelled).

15. (Currently Amended) A method for assessing the proximity of a spinal nerve relative to a distal end of at least one probe or surgical tool being introduced towards at least one of a lumbar region and thoracic region of a patient's spine, said lumbar region and said thoracic region of said spine having a ventral column and a dorsal column, said ventral column including a plurality of vertebral bodies and a plurality of intervertebral discs disposed in between said vertebral bodies, said vertebral bodies and intervertebral discs each having an anterior aspect, a posterior aspect opposite from said anterior aspect, and a lateral aspect extending between said anterior and posterior aspects, said dorsal column including a plurality of bone elements extending from said vertebral bodies to form a spinal canal that contains and protects the spinal chord, said spinal nerve exiting from said spinal canal and disposed generally parallel to a longitudinal axis of said spine along said lateral aspect, the method comprising:

(a) emitting a stimulus signal from an electrode disposed on a probe or surgical tool as said probe or tool is introduced towards a lateral aspect of at least one of a vertebral body and an intervertebral disc of at least one of a lumbar region and thoracic region of a patient's spine;

(b) electromyographically monitoring muscles coupled to said spinal nerve to determine if a predetermined neuro-muscular response is elicited by the stimulus signal;

(c) increasing the intensity level of said stimulus signal ~~[[only]]~~ until said predetermined neuro-muscular response is elicited by said stimulus pulse and stopping the emission of said stimulus signal immediately after said predetermined neuro-muscular response is detected; and

~~(d) determining the relative distance between said spinal nerve and said distal end of said probe or surgical tool based on said intensity level of said stimulus signal required to elicit said predetermined neuro-muscular response; and~~

~~[[e]]~~ (d) communicating to an operator said intensity level of said stimulus signal required to elicit said predetermined neuro-muscular response, wherein said intensity level required to elicit said predetermined neuro-muscular response represents the proximity of said spinal nerve to said probe or surgical tool.

16. (Previously Presented) The method of claim 15, wherein the stimulus signal is emitted from an electrode disposed on the distal end of the at least one probe or surgical tool.

Claims 17-21 (Cancelled).

22. (Previously Presented) The method of claim 15, wherein detecting neuro-muscular responses involves detecting the neuro-muscular responses at a plurality of distally spaced apart myotome locations corresponding to each of a plurality of spinal nerves.

23. (Previously Presented) The method of claim 15, further comprising:
repeating the method of claim 15 while the intensity level of the electrical stimulus signal is varied over time.

24. (Previously Presented) The method of claim 23, wherein the intensity level of the stimulus signal is varied incrementally.

25. (Previously Presented) The method of at least one of claims 23 and 24, wherein the intensity level of the stimulus signal is increased over time.

26. (Previously Presented) The method of claim 15, wherein said spinal nerve is one of a plurality of spinal nerves exiting from successive vertebrae.

Claims 27-29 (Cancelled).

30. (Previously Presented) The method of claim 15, wherein the method of claim 15 is performed in a repeating sequence.

31. (Previously Presented) The method of claim 30, wherein the method of claim 15 is repeated automatically.

32. (Original) The method of claim 30, wherein the method of claim 15 is repeated under operator control.

33. (Previously Presented) The method of claim 15, wherein communicating to said operator involves at least one of visually and audibly indicating to said operator the intensity level of the stimulus signal required to elicit said predetermined neuro-muscular response.

34. (Previously Presented) The method of claim 33, further comprising:

repeating the method of claim 15, thereby detecting and measuring sequential sets of neuro-muscular responses for said spinal nerve; and

simultaneously visually displaying to an operator the measured levels of at least two sets of the neuro-muscular responses for said spinal nerve.

35. (Previously Presented) The method of claim 15, further comprising:

visually indicating to said operator that said spinal nerve is positioned near the distal end of the at least one probe or surgical tool.

36. (Previously Presented) The method of claim 15, further comprising:

audibly indicating to said operator that said spinal nerve is positioned near the distal end of the at least one probe or surgical tool.

37. (Previously Presented) The method of claim 36, wherein audibly indicating to said operator involves sounding an alarm as the nerve is approached.

38. (Previously Presented) The method of claim 36, wherein the volume of the alarm is varied as the nerve is approached.

39. (Previously Presented) The method of claim 37, wherein the frequency of the alarm is varied as the nerve is approached.

Claims 40-50 (Cancelled).